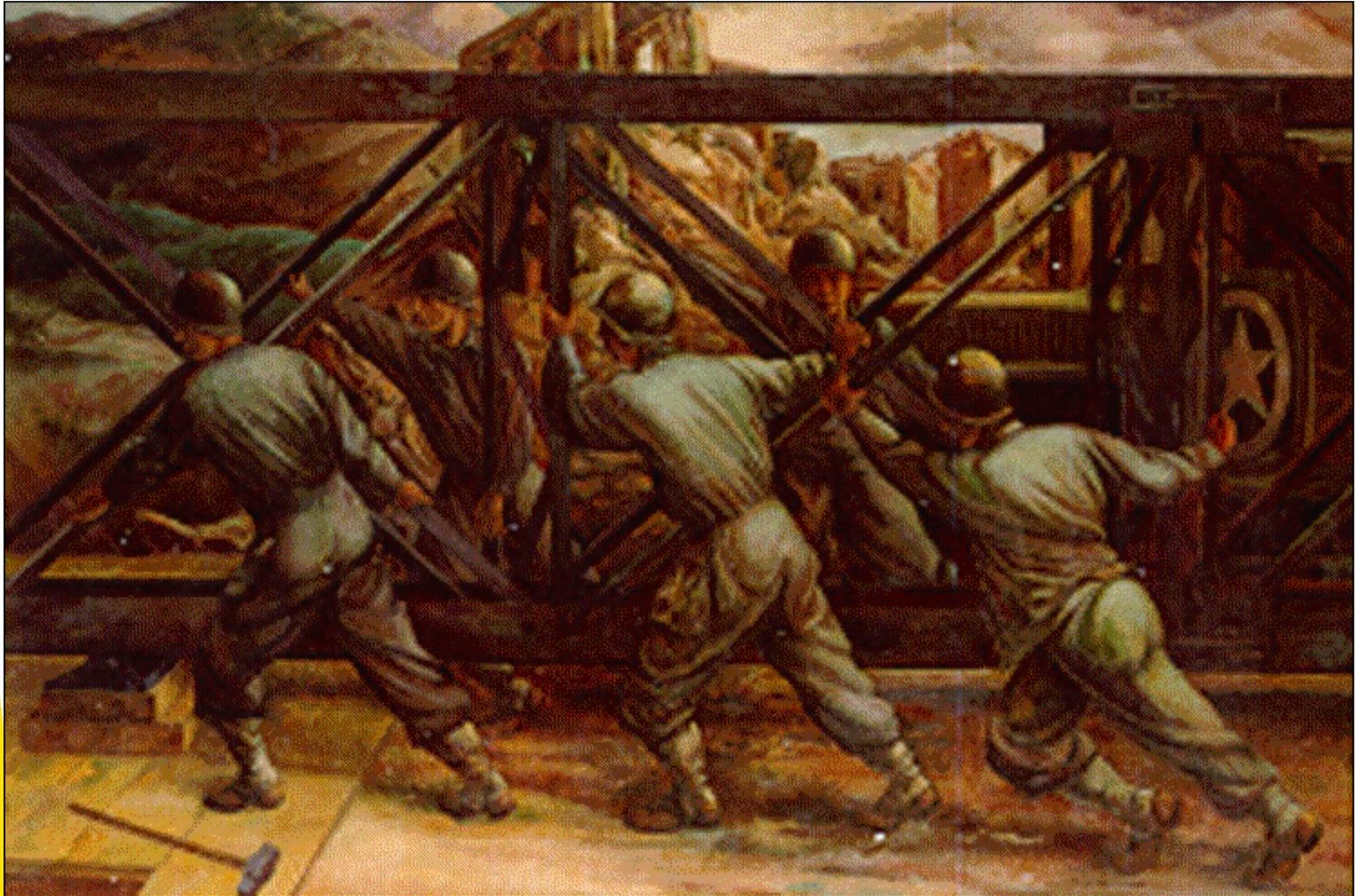


# Bailey Bridge



# Outline

History

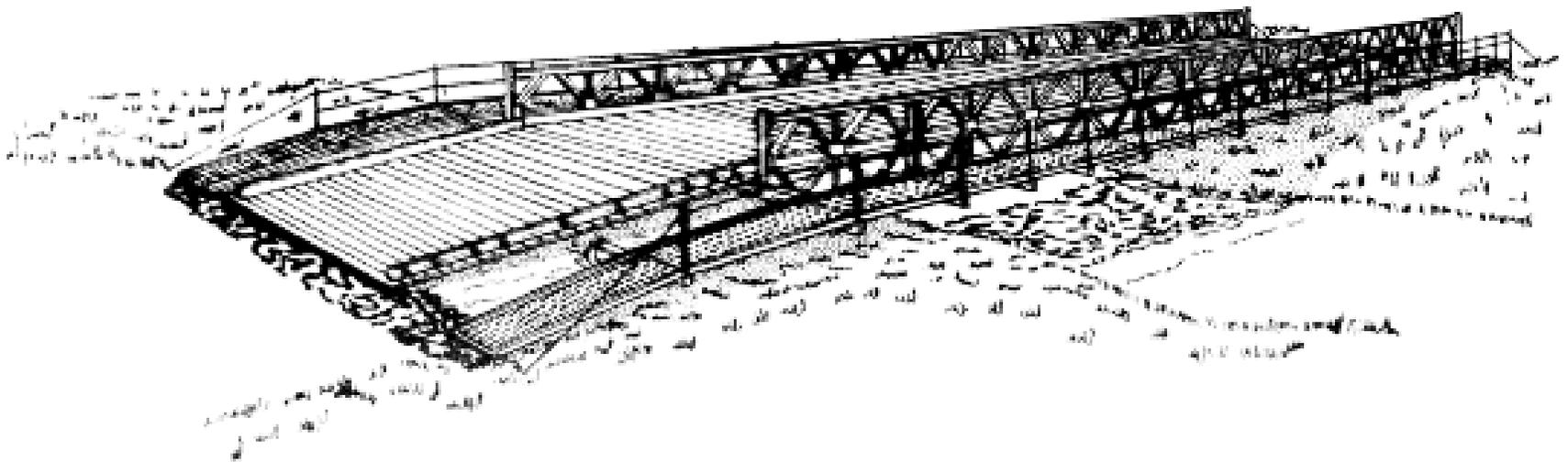
Assembly

Impact on WWII

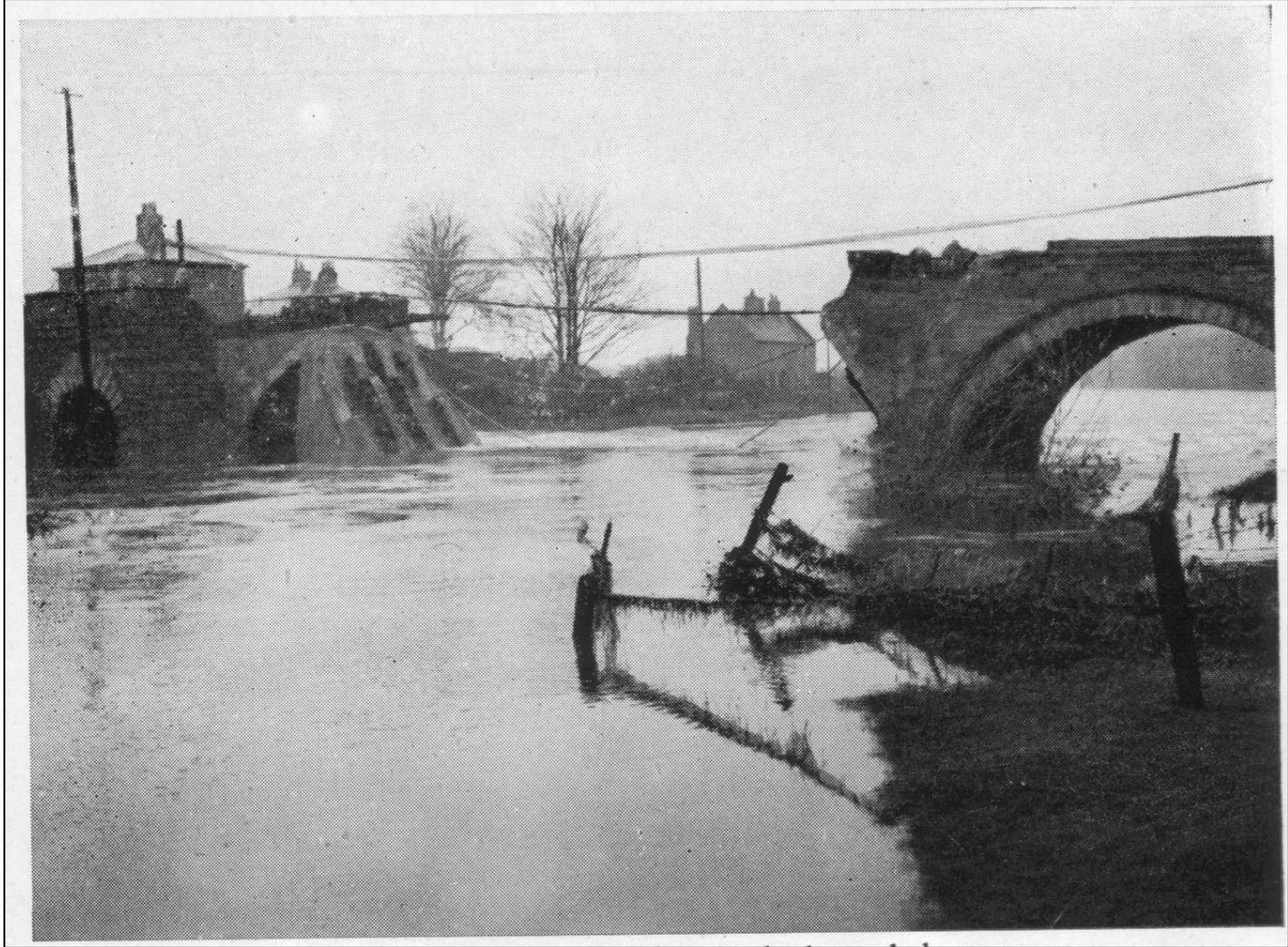
Versatility

Future

Questions

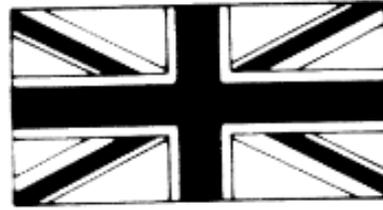


# Problem





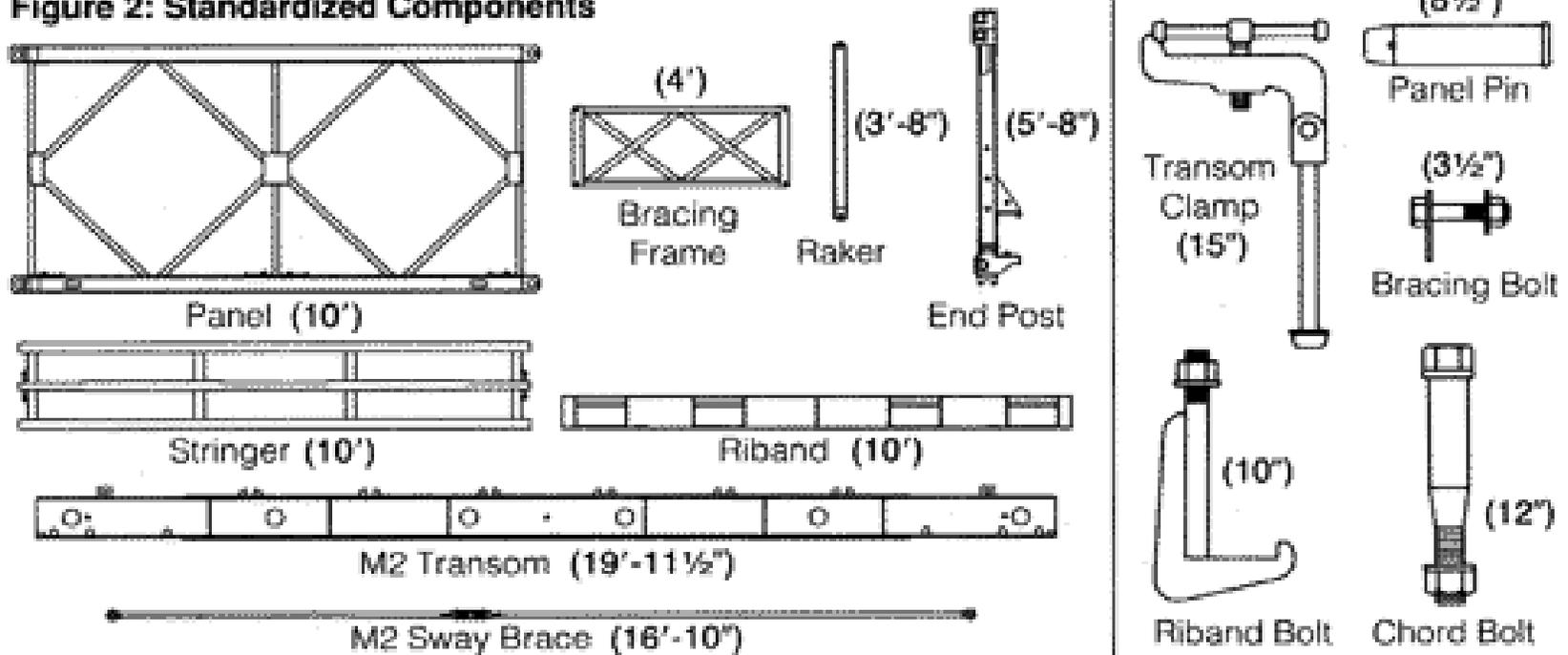
**Donald Bailey** , Kt, OBE, D Eng,  
1901 C Eng, MICE,  
1985 MI Struct E, JP



- **Education-** Leys School, Cambridge, and Sheffield University (Doctorate of Engineering)
- **Career-** Sheffield City Engineer Department, Experimental Bridging Establishment (1928), First Director of the Military Engineering Experimental Establishment
- **Knighthood** in 1946

**Design employed prefabricated panels and parts**  
**Can be carried by trucks and assembled using manpower alone**  
**Erection using simple tools (ropes, pulleys, jacks and hammers)**  
**Can be moved, rebuilt, or replaced in several hours, even under enemy fire**

**Figure 2: Standardized Components**



# Incredible Versatility



# How it works

- 1-Recon Site
- 2-Determine construction requirements

Table 14-1 Classes of Bailey bridge M2 (reinforced with partial stories)

TYPE OF CONSTRUCTION SIMPLE SPANS (ft)	DS			TS			DD			TD			
	BAYS REINF	CLASS W T		BAYS REINF	CLASS W T		BAYS REINF	CLASS W T		BAYS REINF	CLASS W T		
90	0 3	35 40	40 45	0 5	65 70	65 75							
100	0 6	30 35	30 45	0 4 6	50 55 65	55 60 70	0 4	80 90	80 90				
110	0 7	20 35	40	0 5 7	35 45 55	40 55 65	0 5 7	65 75 80	70 80 90*				
120	0 6 8	16 24 30	35	0 6 8	30 40 55	35 45 60	0 6 8	45 70 75	55 75 85	0 4 6	65 75 100*	70 80 90*	
130	0 7 9	12 20 30	30	0 7 9	20 35 50	20 35 55	0 5 7 9	35 40 60 65	45 50 65 70	0 5 7	55 70 90	60 70 90*	
140	0 8 10	8 16 24		0 8 10	16 30 40	16 30 45	0 6 8 10	30 35 50 65	35 40 60 65	0 6 8	45 60 80	55 65 90*	
150				0 9 11	12 24 35	12 30 40	0 7 9 11	24 30 45 60	24 35 55 60	0 7 9 11	35 45 70 85	45 55 80 80	
160				0 8 10 12	8 12 20 24	8 12 30	0 8 10 12	16 24 40 50	16 24 50 50	0 8 10	30 40 65	35 50 75	
170							0 9 11 13	12 20 35 40	12 20 40 45	0 9 11	20 35 60	40 70	
180							0 10 12 14	8 12 30 35	8 12 35 40	0 10 12	16 30 50	35 60	
190										0 11 13	12 24 45	30 50	

Note:  
W represents wheeled-load class  
T represents tracked-load class

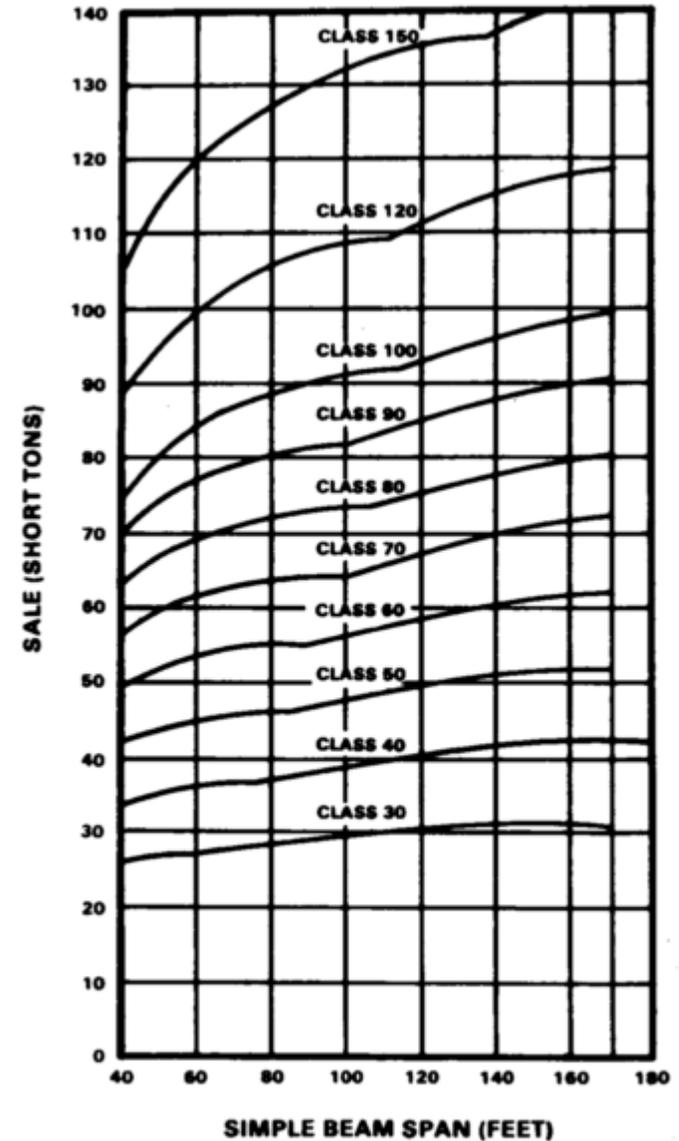
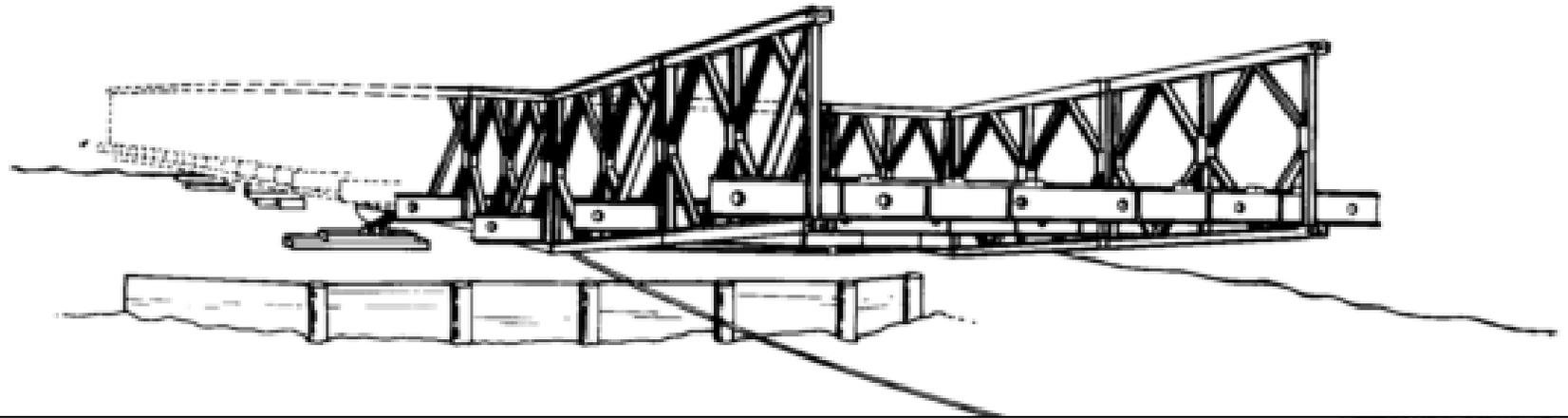
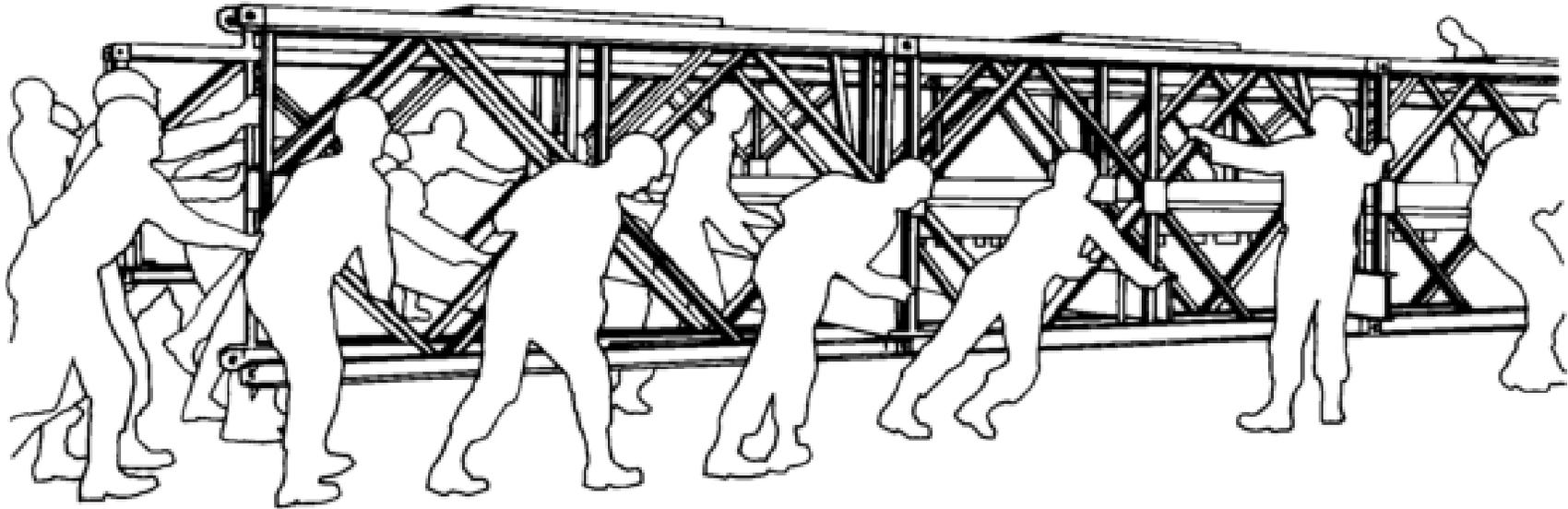


Figure C-9 Standard class curves (moment), 30 to 150

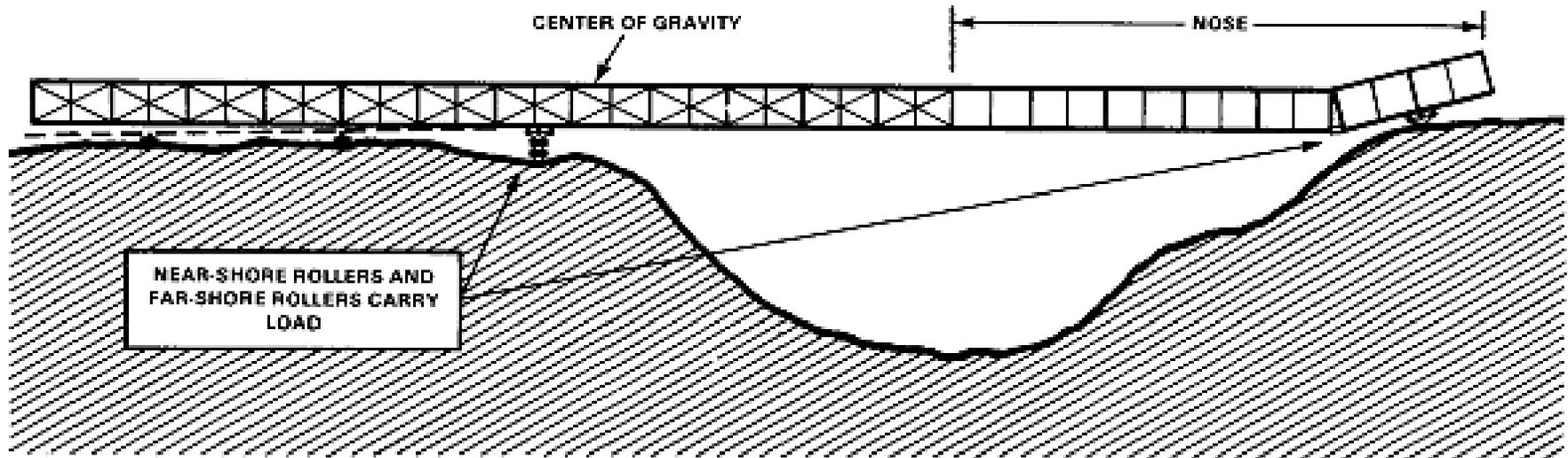
# 3-Build it



# Lay Ho Heave



*Figure 6-23 Pushing bridge over gap*



*Figure 6-22 Position of rollers*

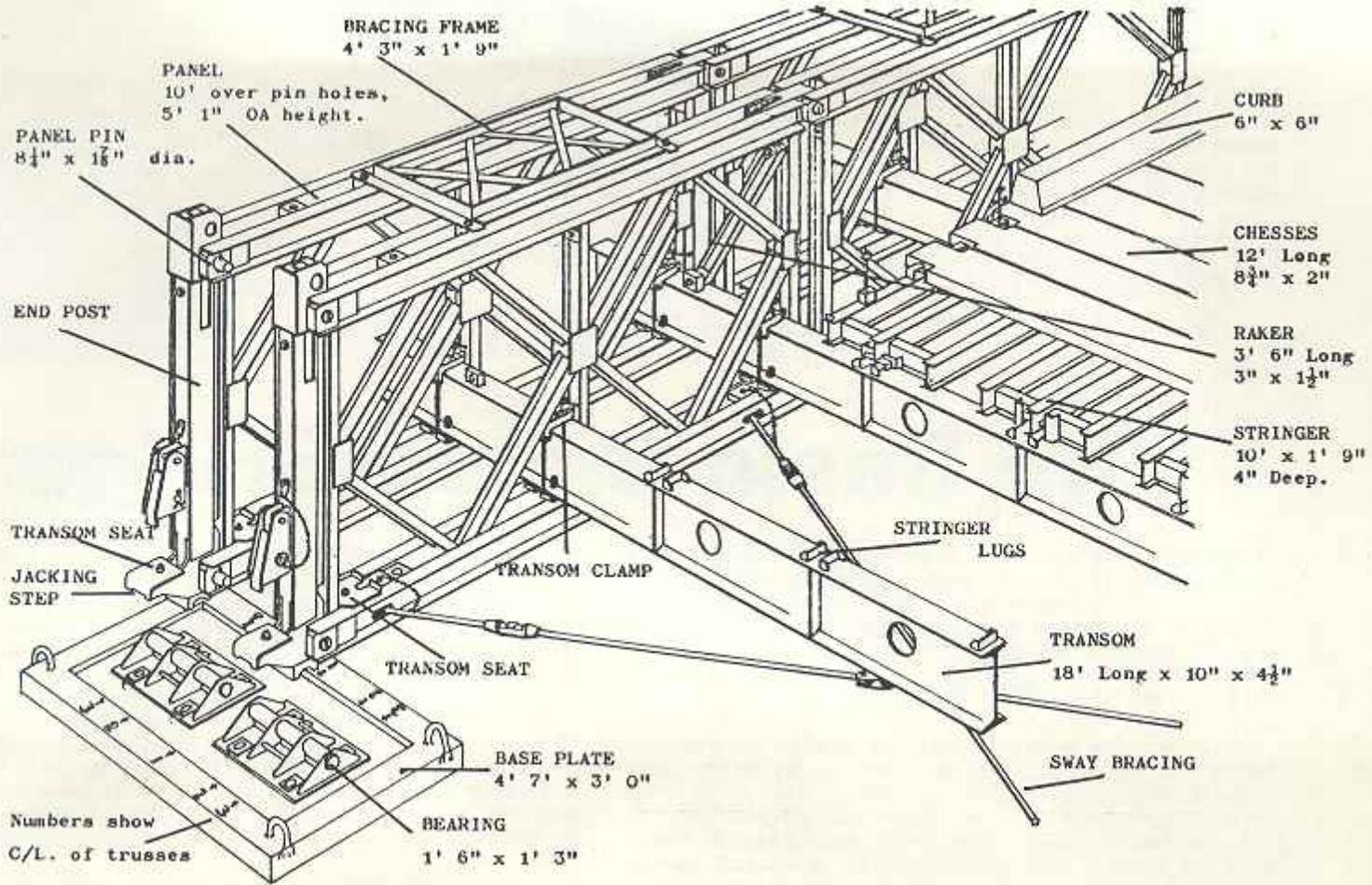
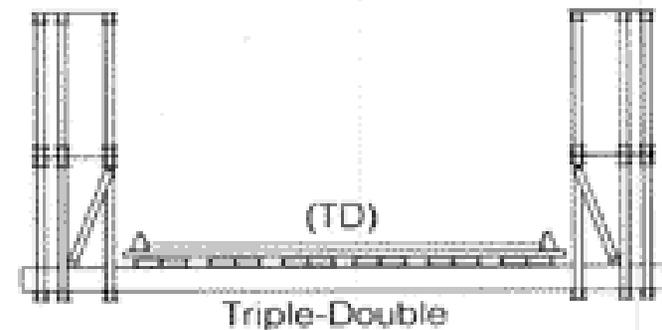
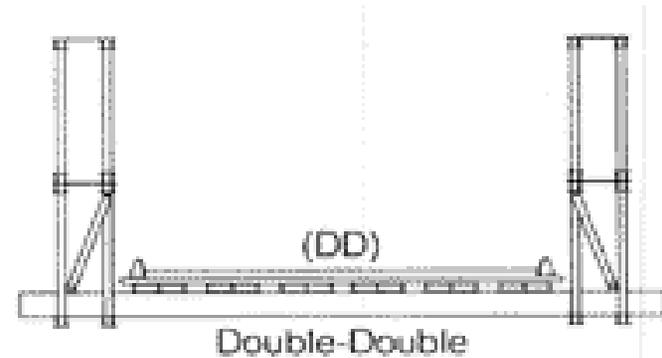
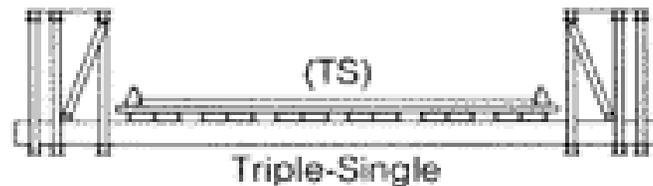
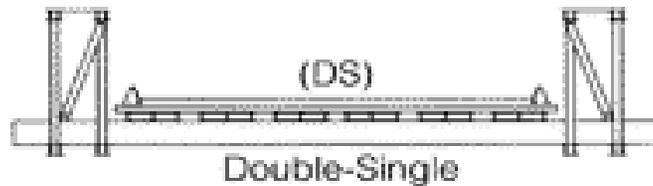


DIAGRAM OF DOUBLE TRUSS - SINGLE STOREY (DS)

# MULTIPLE CONFIGURATIONS

Figure 4: Bailey Configurations



- Identical panels can be mated and stacked to increase span or load capacity or both





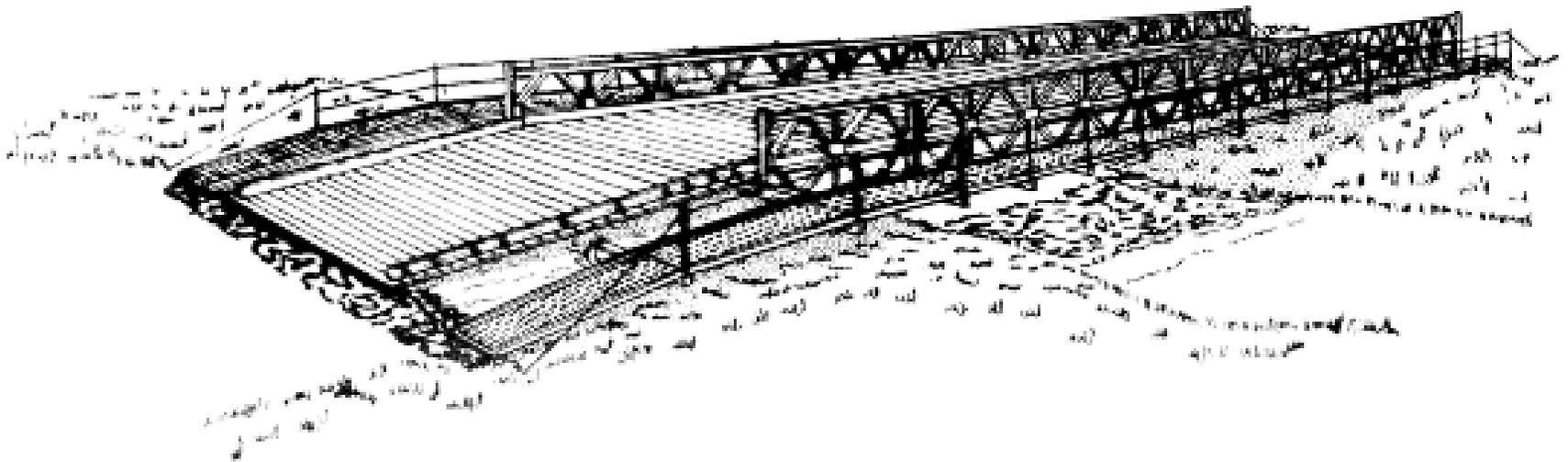
# How a bridge won WWII

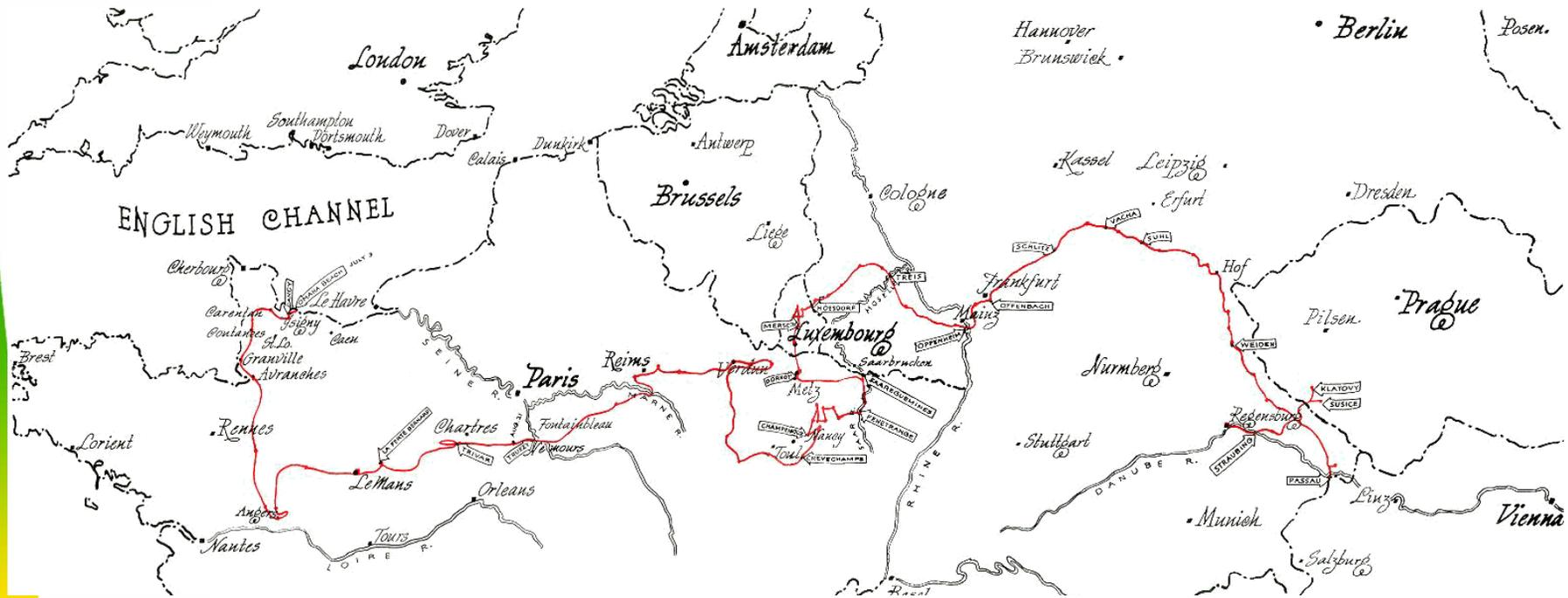
***Without the Bailey Bridge, we should not have won the war. It was the best thing in that line that we ever had.”***

**Field Marshal Lord Bernard L. Montgomery**

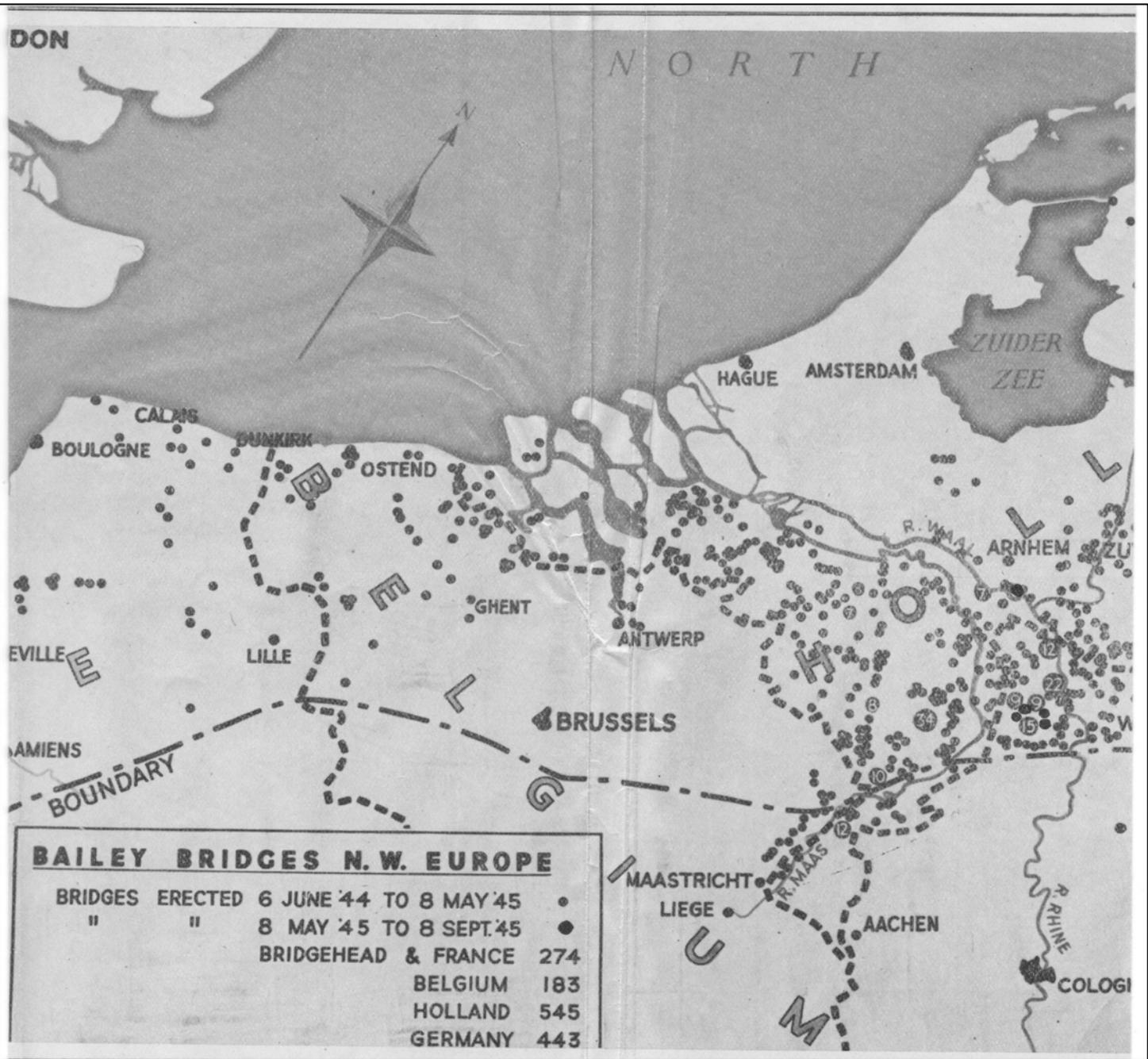
***“...one of the three pieces of equipment that most contributed to our victory in Festung Europa.”***

**General Dwight Eisenhower**

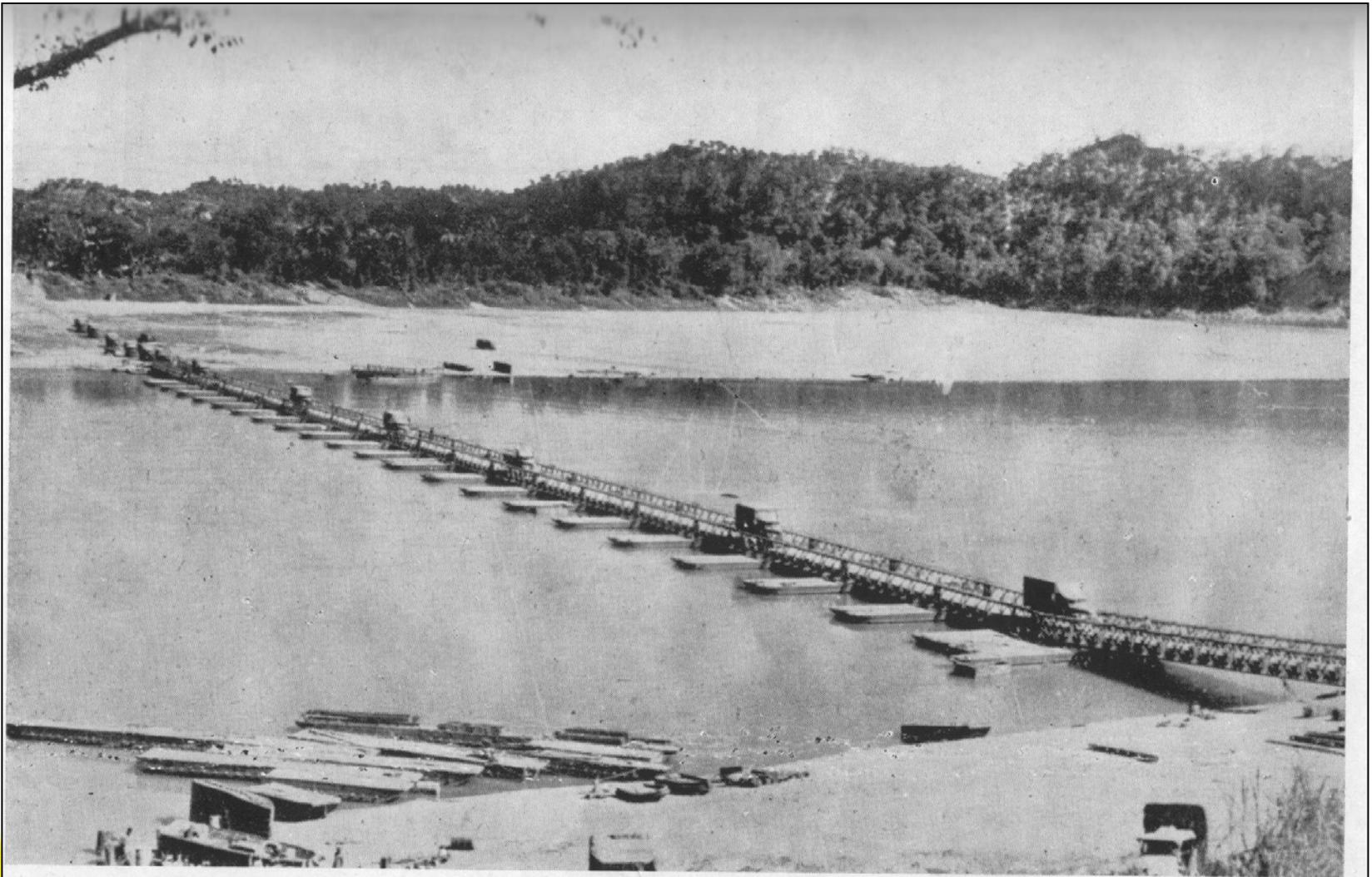




## 150th Road to Victory



# Versatility of the Bailey



GRUB BRIDGE.

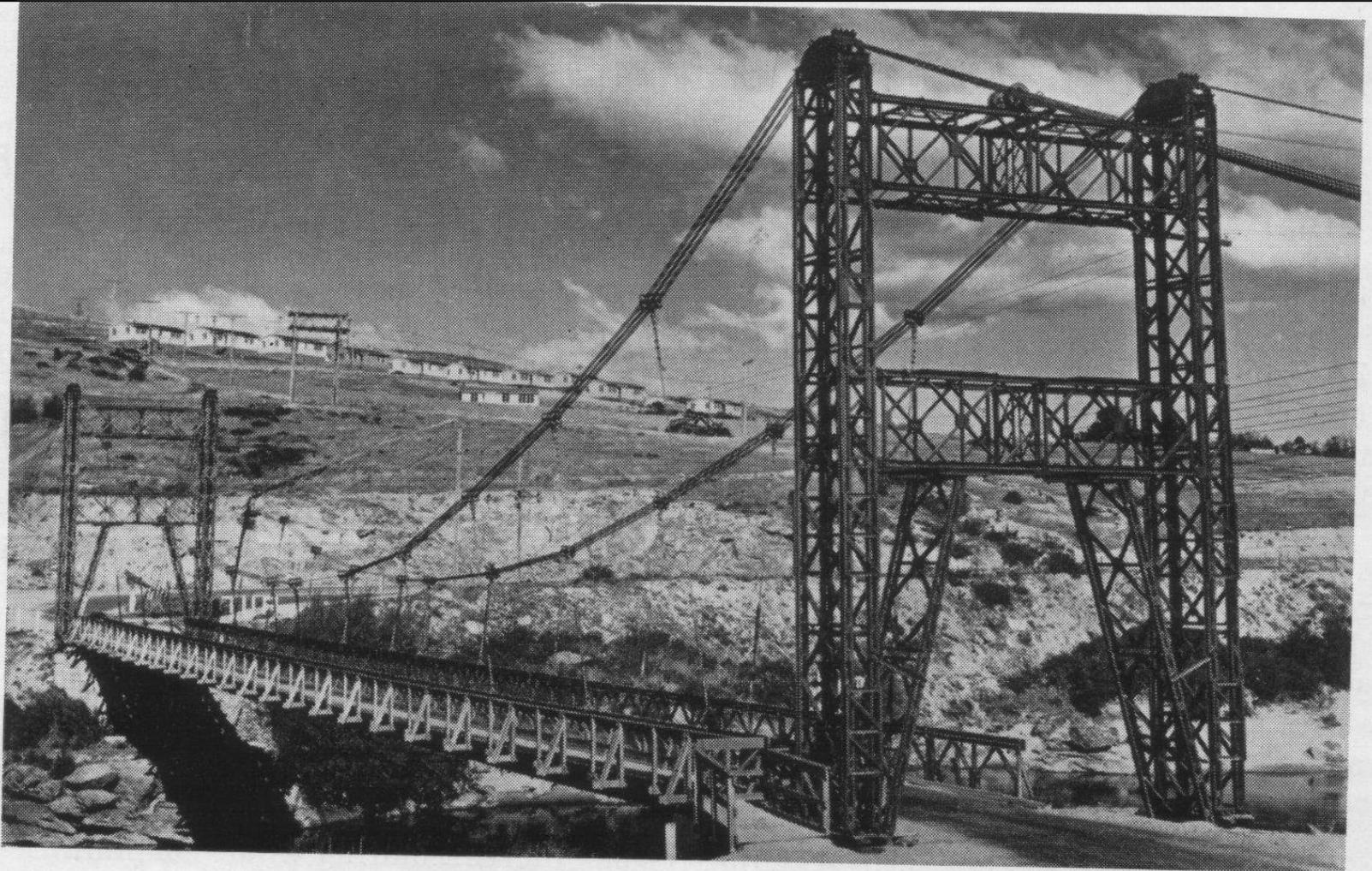


Bailey Towers and Trestle Supports for Conveyor at Des Joachims Dam

**Post-War  
construction  
applications**

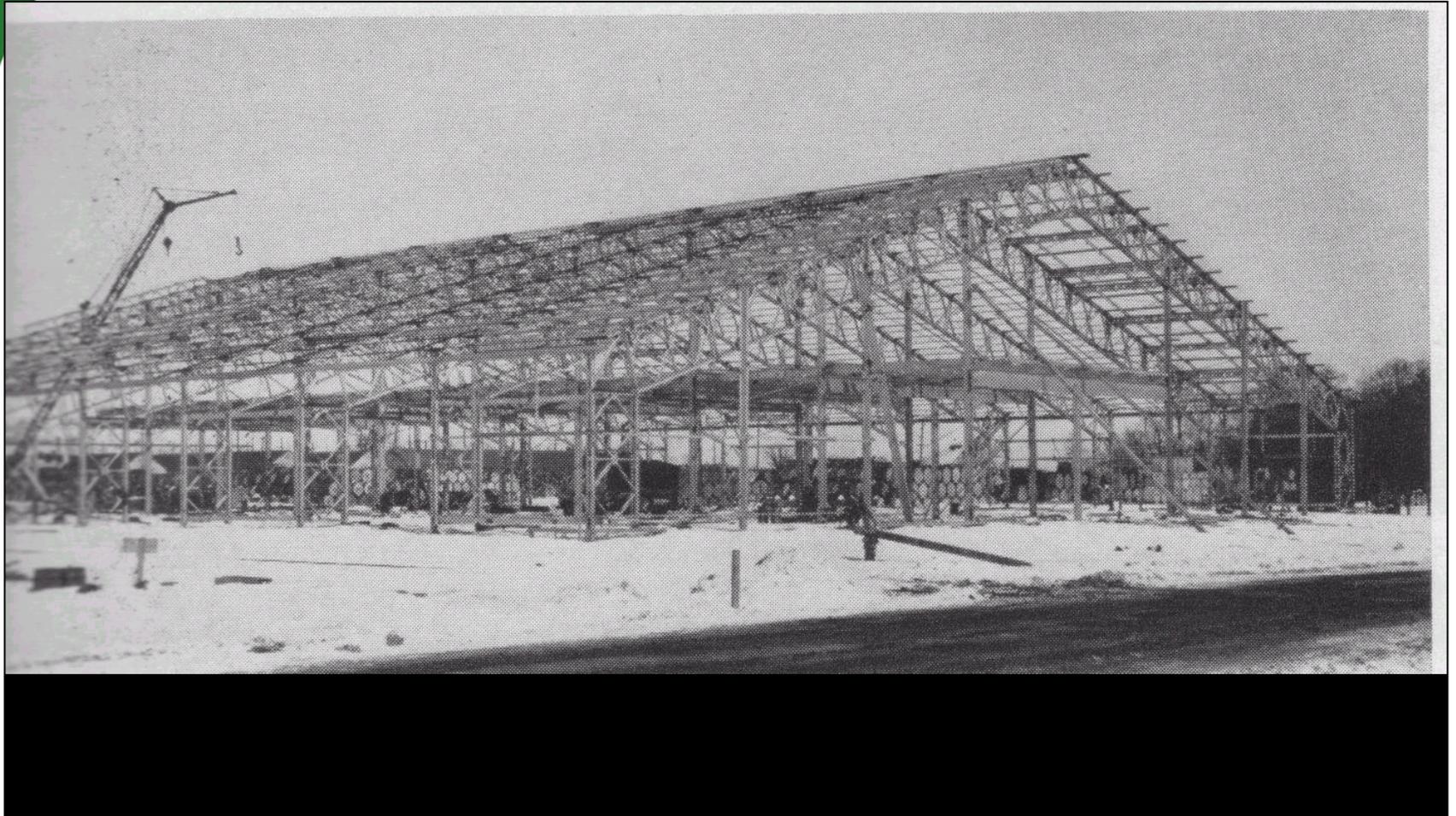
**Bailey Bridge  
components  
were sold as  
surplus after  
World War II**

**Used here in  
erecting a  
concrete  
gravity dam  
in Quebec**



Suspension Bridge over the River Clutha in New Zealand

- Bailey suspension spans were widely used in Asia during and after the Second World War because of their wide availability and low cost



- **Bailey Bridge panels being used as roof trusses for a factory building in South Africa during the 1950s**

# What of the name Bailey now?

**Donald Bailey lived his life in relative obscurity.**

**During the 1960s Thomas Storey Engineers Ltd of London marketed Bailey Bridges under the name Bailey-Uniflote all over the world**

**Today, another English firm, Mabey Johnson, fabricates the same style component steel segmented truss bridges using higher strength, lower weight structural steel**

